

A REVISION OF CALIFORNIAN UMBELLIFERAE.—III.

WILLIS LINN JEPSON

(Continued from page 130)

3 to 5 in the intervals, 8 on the commissure.—Inner South Coast Ranges from San Luis Obispo Co. to northern Los Angeles Co.

Locs.—San Luis Obispo Co., *R. W. Summers*; Antelope Valley, *Davidson*; Harold, Los Angeles Co., *Davidson*; Acton, Los Angeles Co., *Davidson*.

Ref.—EULOPHUS PRINGLEI C. & R. Rev. N. Am. Umbell. 113 (1888), type from Cal., *Pringle* 40.

4. *E. parishii* C. & R. Stem usually very slender, $\frac{2}{3}$ to $1\frac{1}{4}$ (or $2\frac{1}{2}$) ft. high; tubers 1 to 3, fusiform; leaves ternate, sometimes biternate; leaflets narrowly linear to narrowly lanceolate, 1 to 3 or $4\frac{1}{2}$ in. long, the terminal sometimes distant; uppermost leaves simple, bract-like; rays 5 to 22, 4 to 7 or 11 lines long in fruit; pedicels 1 to 2 lines long; involucre none or scanty; bractlets 2 to 6, narrowly lanceolate, 2 lines long; fruit oblong to ovate, 1 to $1\frac{1}{2}$ lines long; oil tubes 2 to 5 in the intervals, 6 on the commissure.—Bogs and meadows, 6000 to 8000 ft.: mountains of Southern California (not uncommon); central and southern Sierra Nevada (rare).

Locs.—Cuyamaca, *T. Brandegee* (very stout); Tahquitz Valley, Mt. San Jacinto, *Hall* 851; South Fork Mdws., Santa Ana Cañon, *Hall* 7538; Bear Valley, San Bernardino Mts., *Parish* 3171, 3730. Sierra Nevada: Hockett Mdw., Tulare Co., *C. F. Baker* 4450; Poison Mdw., Soda Cañon, upper Kern River, *Jepson* 1116; Silver Creek, Eldorado Co., *Kennedy* 163. The following have ternate leaves with narrow leaflets (*E. simplex* C. & R.) and are in flower only but appear to belong here: Simpson Mdw., Middle Fork Kings River, *Henrietta M. Eliot*; Piute Creek, Pleasant Valley, Yosemite Park, *Jepson* 3400; Placer Co., *Carpenter*; Bear Valley, Nevada Co., *Jepson*.

Refs.—EULOPHUS PARISHII C. & R. Rev. N. Am. Umbell. 112 (1888). *Pimpinella parishii* C. & R. Bot. Gaz. 12:157 (1887), type loc. Bear Valley, San Bernardino Mts., *S. B. & W. F. Parish* 987. *E. simplex* C. & R. Contrib. U. S. Nat. Herb. 7:112 (1900). *E. pringlei* var. *simplex* C. & R. Rev. N. Am. Umbell. 113 (1888), Sierra Co., *Lemmon*. *Carum gairdneri* var. *latifolium* Gray, Proc. Am. Acad. 7:344 (1868), type loc. Sierra Co., *Lemmon*.

5. *E. cuspidatus* Jepson n. sp. Stem slender, 6 to 9 in. high, sparingly branched; leaves bipinnately divided into few linear divisions; rays 6 to 10, 2 to 5 lines long; pedicels 1 to 2 lines long; bracts 4 to 6, obovate, membranous, erosulate at the truncatish or obtuse apex, 2 lines long; tipped by a bristle 1 to $1\frac{1}{2}$ lines long; fruit (immature) ovate, obscurely short-beaked, $1\frac{1}{2}$ lines long.—Calaveras Co.

Loc.—Table hills near Mountain Ranch, Calaveras Co. (Davy 1618, type).

18. CÍCŪTA L. WATER HEMLOCK.

Tall branching glabrous perennials growing in marshes or by stream banks. Rootstocks short and erect, or horizontal and branching. Leaves at least partially twice or thrice pinnate. Flowers white, in compound umbels. Involucre present or none. Involucels of small bractlets. Calyx-teeth somewhat prominent. Styles somewhat short. Fruit flattened laterally, broadly ovate to roundish. Ribs corky, broad but low, the lateral in cross section larger than the intermediate and dorsal. Oil tubes 2 on the commissure, solitary in the intervals. (Classical name of the Hemlock, which was given to criminals, and sometimes, when the Greeks had a superfluity, to philosophers, as a death-poison.)

Fruit with the intervals red-brown, contrasting with the corky ribs; intervals broad.

Plants of living streams.

Leaves simply pinnate or partially bipinnate below 1. *C. californica*.

Leaves bi- to tri-pinnate 2. *C. douglasii*.

Plants of salt-marshes 3. *C. bolanderi*.

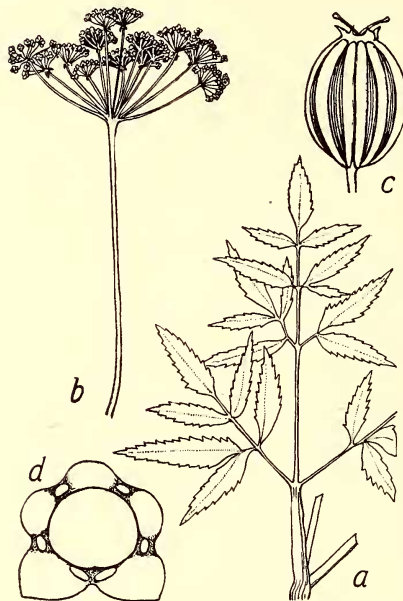
Fruit with intervals of much the same color as the ribs; intervals very narrow

4. *C. vagans*.

1. *C. californica* Gray. CALIFORNIA WATER HEMLOCK. Stems about 3 ft. high; basal leaves pinnate or partly bipinnate below, 1 to 2½ ft. long, on long (½ to 1½ ft.) petioles; leaflets ovate-lanceolate or lanceolate, serrate, 3 to 5 in. long, often deeply 1-lobed on one side towards the base so as to make a supplementary leaflet; rays somewhat unequal, 1¼ to 2½ in. long; pedicels 2 to 4 lines long; involucre none, or merely 1 narrow bract; bractlets several, ovate, acuminate; fruit 1 to 1¼ lines long with narrow not depressed oil tubes, those on the face approximate near the median line; ribs large and corky, rounded, yellowish, the intervals very narrow or lineate, dark red-brown.—Coast region, from Mendocino and Lake Cos. to Monterey Co.

Locs.—Mt. Hull, *Hall* 9573; Leona, Oakland Hills, *Michener*; Ben Lomond, *C. E. Worden*; Carmel River, *Jepson*.

Refs.—*CICUTA CALIFORNICA* Gray, Proc. Am. Acad. 7:344 (1868), type loc. Monterey, *Hartweg* 1754. *C. virosa* L. var. *californica* C. & R. Rev. N. Am. Umbell. 130 (1888); *Jepson*, Fl. W. Mid. Cal. 351 (1901).



19. *Cicuta douglasii* C. & R.; a, leaf x ½; b, umbel x ¼; c, fr. x 5; d, sect. carp. x 10.

2. *C. douglasii* (DC.) C. & R. WESTERN WATER HEMLOCK. Fig. 19. Stems stout, glaucous, 3 to 4 ft. high; herbage often purplish; rootstocks short; leaves bipinnate; leaflets sessile or nearly so, lanceolate, 1½ to 4 in. long, coarsely incised-serrate to serrulate, sometimes falcate; involucre none or of a few lanceolate bracts; involucrels consisting of 9 to 12 lanceolate-acuminate bractlets; rays 1½ to 2½ in. long; pedicels 2 lines long; fruit sub-orbicular, 1 to 2 lines long; ribs very broad and low; intervals narrow, red-brown, sharply defined from the light-colored ribs; oil tubes small; seed not channeled under the oil tubes.—Mountain streams, almost throughout California; north to Alaska.

Locs.—Humboldt Bay, *Tracy* 2597; Bald Mt. between High Prairie and Snow Camp, *Tracy* 4612; *Sisson*, *Jepson*, *Geo. B. Grant*; Edgewood, *T. Brandegee*; Ft. Bidwell, *Jepson* 7921; Quincy, *Hall* 7376; Red Mdw., *Madera Co.*, *A. L. Grant* 1561a; Lone Pine, *Jepson* 5153; Los Angeles, *Parish*, *Davidson*.

Refs.—*CICUTA DOUGLASHII* C. & R. Contrib. U. S. Nat. Herb. 7:95 (1900). *Sium douglasii* DC. Prod. 4:125 (1830), type from northwest America, *Douglas*. *C. occidentalis* Greene, f. *frondosa* Greene, Pitt. 2:7 (1889), type loc. Tehachapi, *Greene*. *C. frondosa* Greene, Leaflets, 2:236 (1912). *C. valida* Greene, l. c. 239, type loc. e. slope Sierra Nevada in Mono Co., *Bolander*.

3. *C. bolanderi* Wats. Stem 5 to 10 ft. high, branched above, with nearly or quite vertical rootstock and large basal and cauline bipinnate leaves ¾ to 2 ft. long; leaflets lanceolate, serrate, 1¼ to 3 in. long; bracts and bractlets lanceolate, the former often scarious-margined; rays 1 to 1½ in. long, subequal, pedicels 2 lines long; fruit 1½ to 2 lines long, prominently ribbed, the carpels when quite mature rather strongly concave on the commissure, thus appearing somewhat lunate; oil tubes broad, depressed in the channeled seed.—Marshes about Suisun Bay.

Locs.—Suisun Marshes, *Jepson* 2460c; Benicia, *Jepson*; Martinez, *Davy* 6668.
 Refs.—*CICUTA BOLANDERI* Wats. Proc. Am. Acad. 11:139 (1876), type loc. Suisun Marshes, *Bolander*; *Jepson*, Fl. W. Mid. Cal. ed. 2, 296 (1911).

4. *C. vāgans* Greene. Habit and appearance of *C. douglasii*; corky ribs low and broad, brownish, the intervals of the same color and not revealing the oil tubes.—East side of the northern Sierra Nevada. North to Idaho.

Locs.—Truckee, *Sonne*, *Kennedy* 4603.

Refs.—*CICUTA VAGANS* Greene, Pitt. 2:9 (1889), type loc. Lake Pend d'Oreille, Ida., *Greene*. *C. sonnei* Greene, Leaflets, 2:239 (1912), type loc. Truckee, *Sonne*, *Greene*.

19. OENÁNTHE L.

Aquatic glabrous herbs with succulent stems from thick rootstocks. Leaves pinnately compound. Flowers white, in compound umbels terminating the branches. Involucre present or none. Involucels present. Calyx-teeth rather prominent. Styles slender, at length elongated. Fruit in ours cylindric, slightly flattened laterally. Ribs broad, obtuse, corky; commissural face also corky. Oil tubes solitary in the intervals, 2 on the commissure, the seed furrowed beneath them.—Species about 30, all continents. (Ancient Greek name of some thorny plant.)

1. *O. sarmentōsa* Presl. Fig. 20. Stems 2 to 4 ft. high; leaves bipinnate, or the lowest ones elongated-pinnate (1 to 2 ft. long), or partially bipinnate towards the base; leaflets serrate, coarsely toothed or incised, $\frac{3}{4}$ to $1\frac{1}{2}$ (or $2\frac{1}{2}$) in. long; rays $\frac{3}{4}$ to 1 in. long; bracts few or none; bractlets lanceolate, acuminate; fruit 1 to 2 lines long, the ribs very corky and somewhat turgid.—Slow streams or shallow ponds, often filling them with dense masses: Southern California, Coast Ranges and northern Sierra Nevada. North to British Columbia.

Biol. note.—In autumn the stems give rise from the lower nodes to slender runner-like branches 3 to 5 ft. long which at intervals produce bulblets $\frac{1}{2}$ in. in diameter or less. Herbage often reddish.

Locs.—Samoa, Humboldt Co., *Tracy* 3088; Ft. Bragg, *W. C. Mathews*; Amador Co. (acc. *Coulter & Rose*); Alviso, *Jepson* 9316 (intergrade to var. *californica*); Carmel River, *Jepson*; Ballona Creek, Los Angeles Co., *Abrams* 2526; San Bernardino Valley, *S. B. & W. F. Parish* 976; Palomar, *T. Brandegee*; Laguna Mts., San Diego Co., *T. Brandegee*. The species passes by indefinite gradations into the var. *CALIFORNICA* C. & R., the leaflets of the upper leaves crowded on the rachis and tending to be conduplicate.—Chiefly central Coast Ranges: Blue Lakes, Lake Co., *Jepson*; Suisun Marshes, *Jepson*; Howell Mt. foothills, *Jepson* (bractlets very conspicuous, exceeding the flowers); Pt. Reyes, *Jepson* 1178 (fruit ovoid-cylindric); Mt. Tamalpais, *Jepson*; Jarvis Ldg., Alameda Co., *Jepson*; San Jose, *Jepson*; Santa Cruz, *Kennedy*.

Refs.—*ONEANTHE SARMENTOSA* Presl; DC. Prod. 4:138 (1830), type loc. Nootka Sound, Vancouver Isl., *Haenke*; *Jepson* Fl. W. Mid. Cal. 354 (1901).

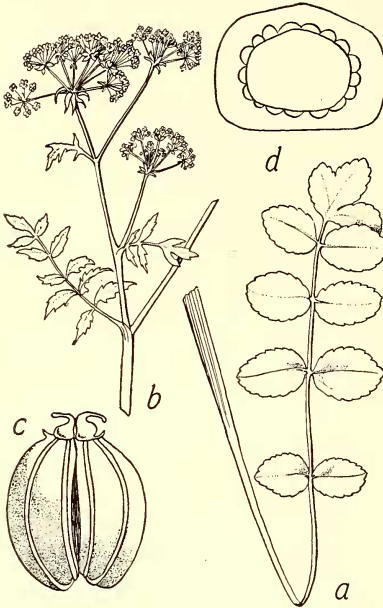


20. *Oenanthe sarmentosa* Presl; a, leaf $\times \frac{1}{2}$; b, umbel $\times \frac{1}{2}$; c, fr. $\times 4$; d, sect. carp. $\times 8$.

Var. CALIFORNICA C. & R. Rev. N. A. Umbell. 92 (1888), type loc. Point Lobos, San Francisco, *Kellogg*; Contrib. U. S. Nat. Herb. 7:122, fig. 35 (1900); Jepson l. c. ed. 2, 298 (1911). *O. californica* Wats. Proc. Am. Acad. 11:139 (1876), marshes at Pt. Lobos and Merced Lake and southward to San Diego Co.; Jepson, l. c. ed. 1:354 (1901).

20. BÉRULA Hoffm.

Glabrous aquatic or marsh perennial. Leaves simply pinnate, the leaflets sharply and often somewhat saliently serrate. Involucre and involucels present, the bracts and bractlets narrow. Flowers white, in compound umbels. Calyx teeth minute. Fruit roundish, flattened laterally, obscurely notched at base. Carpels with very slender and inconspicuous ribs and thick corky pericarp. Oil tubes numerous, contiguous, surrounding the seed. (Latin name of the Water Cress.)



21. *Berula erecta* Cov.; a, leaf x $\frac{3}{8}$; b, fl. branchlet x $\frac{1}{2}$; c, fr. x 12; d, sect. carp. x 15.

1. *B. erecta* (Huds.) Cov. Fig. 21. Erect, corymbosely branching, $\frac{1}{2}$ to 2 ft. high; leaflets 3 to 9 pairs, ovate to oblong, 1 to $2\frac{1}{2}$ in. long; fruiting rays $\frac{1}{2}$ to 1 in. long; pedicels $1\frac{1}{2}$ to 2 lines long; fruit $\frac{3}{4}$ line long.—Swamps and streams, coastal Southern California, northerly through the desert to Inyo Co. and Siskiyou Co. Throughout North America. Europe, Asia.

Locs.—Ramona, *K. Brandegee*; Los Angeles, *Geo. B. Grant* 104; Pasadena, *McClatchie* 475; Oak Knoll, *Braunton* 647; Ft. Tejon (acc. *Coulter & Rose*); Owens Lake, *Jepson* 5113; Restings sprs. (acc. *Coville*); Sisson, *Jepson*. Also attributed to San Mateo by Greene.

Refs.—BERULA ERECTA Cov. Contrib. U. S. Nat. Herb. 4:115 (1893); C. & R. Contrib. U. S. Nat. Herb. 7:116, fig. 32 (1900). *Sium erectum* Huds. Fl. Angl. 103 (1762), type loc. presumably England; Jepson, Fl. W. Mid. Cal. 354 (1901). *Berula angustifolia* Brew. & Wats. Bot. Cal. 1:260 (1876).

21. SĪUM L. WATER PARSNIP.

Glabrous perennial marsh or aquatic herbs with leafy stems. Leaves simply pinnate. Flowers white, in compound umbels. Bracts and bractlets several to many. Calyx-teeth minute. Styles short. Stylopodium depressed. Fruit ovate or oblong, somewhat laterally compressed, with narrow commissure. Ribs corky, prominent or somewhat salient, with broad red-brown intervals. Oil tubes 1 to 3 in the intervals, always 2 or 3 in at least one of the intervals, 2 to 6 on the commissure. (Sion, Greek name of some water plant.)

1. *S. cicutaeifolium* Gmel. Fig. 22. Stem stout, $2\frac{1}{2}$ to $3\frac{1}{2}$ ft. high, from a cluster of fleshy-fibrous roots; leaves $\frac{1}{2}$ to $3\frac{1}{2}$ ft. long; leaflets 5 to 13, lanceolate, serrate, 2 to 4 in. long; bracts and bractlets ovate to lanceolate, the bracts reflexed, scarious-margined below; fruit ovoid, $1\frac{1}{2}$ lines long, with acute ribs.—Sloughs and ponds from Siskiyou Co. to Lassen Co. and Modoc Co. North to British Columbia, east to Virginia.

Locs.—Sisson, *Jepson*; Upper Fall River Valley, *Jepson* 5768; Honey Lake Valley, *Davy* 3363; South Fork Valley, Modoc Co., *Jepson* 7824; Egg Lake, *M. S. Baker*.

Var. *HÉTÉROPHÝLLUM* Jepson. Lowest leaves simple, on long fistulose petioles, or few-pinnate.—Marshes in the Great Valley; Suisun Marshes, *Jepson* 2460e; Stockton, *Greene*.

Refs.—*SIUM CUCUTAEFOLIUM* Gmel. Sys. 2:482 (1791). Var. *HÉTÉROPHÝLLUM* Jepson, Fl. W. Mid. Cal. 353 (1901). *Sium heterophyllum* Greene, Pitt. 2:102 (1890), type loc. Suisun Marshes, *Greene*.

22. *ÖROGENIA* Wats.

Dwarf glabrous perennial herbs with fleshy roots. Stem very short, mostly underground, sheathed by large scarious bracts. Leaves basal, ternate or biternate, with linear segments. Involucre none. Involucels of few linear bractlets. Flowers white, in partly compound umbels, the rays very unequal. Fruit oblong, only slightly flattened laterally. Carpels flattened dorsally; dorsal and intermediate ribs filiform; lateral ribs strongly corky thickened, extended towards the companion carpel so as to leave a large central cavity which is divided longitudinally by a thick corky ridge from the middle of each face. Oil tubes small, 3 in the intervals, 2 to 4 on the commissure. (Greek *oros*, mountain, and *genos*, race, referring to the habitat.)

1. *O. fusifórmis* Wats. Plants 3 to 4 in. high, arising from a long fusiform root; leaf segments $\frac{1}{2}$ to $1\frac{1}{2}$ in. long; umbels 2 to 10-rayed; fruit about 3 lines long.—Wet sandy soil, northern Sierra Nevada from Nevada Co. to Plumas Co. North to Oregon.

Locs.—Road to Donner Lake near Truckee, *Sonne*; Prosser Creek, Nevada Co., *Sonne*. Ashland Butte, s. Ore., *Cusick* 2892.

Refs.—*ÖROGENIA FUSIFORMIS* Wats. Proc. Am. Acad. 22:474 (1887), type loc. Plumas Co., *R. M. Austin*.

23. *LIGÚSTICUM* L. LOVAGE.

Perennial herbs with large aromatic roots. Herbage glabrous. Leaves bi- or tri-ternate in ours, with pinnate divisions. Flowers white or pinkish, in many-rayed compound umbels. Involucre none. Involucels of narrow bractlets. Calyx teeth small or obsolete. Fruit oblong or ovate, a little flattened laterally. Ribs prominent, acute or slightly winged, equal. Oil tubes mostly 3 to 5 in the broad intervals, 6 to 10 on the commissure. (Name derived from Liguria, a province of Italy, where Lovage, *Ligusticum levisticum* L., is endemic.)

Stem more or less leafy; rays and leaf-margins scabrous; coastal. 1. *L. apiodorum*.
Stem not leafy or with 1 reduced leaf; rays and leaf-margins not scabrous; montane.

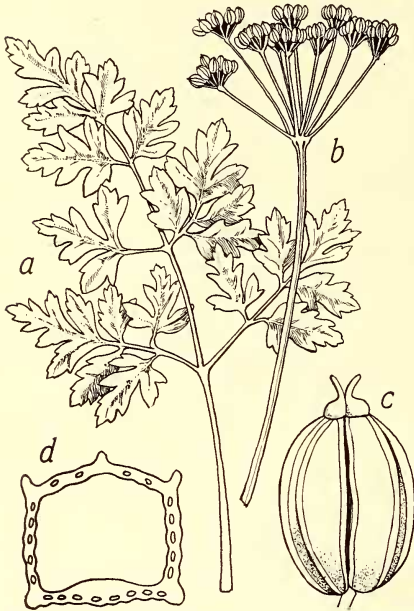
2. *L. grayi*.

1. *L. ãpiodòrum* (Gray) C. & R. Fig. 23. Stems more or less leafy, 2 to 3 (or 6) ft. high; rays and the margins of the leaflets and commonly the



22. *Sium cucutaefolium* Gmel.; a, leaf x $\frac{1}{2}$; b, umbels x $\frac{1}{2}$; c, fr. x 6; d, sect. carp. x 12.

peduncles and the nerves of the leaflets tri-ternate, then the divisions pinnate with



23. *Ligusticum apiodorum* C. & R.; a, leaf x $\frac{1}{2}$; b, fr. umbel x $\frac{1}{2}$; c, fr. x 5; d, sect. carp. x 10.

Proc. Am. Acad. 7:345 (1868), type loc. "rocky hills along the coast of Cal. from Mendocino Co. to San Francisco," Bolander; Jepson, Fl. W. Mid. Cal. 353 (1901).

L. CALIFÓRNICUM C. & R. Contrib. U. S. Nat. Herb. 7:132 (1900), type loc. Covelo, Mendocino Co., Chesnut; resembling *L. apiodorum*; ribs of the fruit filiform (ex char.).

2. *L. grayi* C. & R. Fig. 24. Plants 1 to 2½ ft. high, glabrous, the stems 1 or 2 from a stout fibrous-coated caudex, not leafy or with one much reduced leaf; leaves basal, once or twice ternate, then pinnate with 5 or 7 leaflets, the leaflets ovate in outline, incised, parted or divided, ½ to 1¼ in. long; flowers white; bractlets linear-setaceous, few or none; fruiting rays 1 to 2½ in. long; pedicels 2 to 3 lines long; fruits 2

lines long, the ribs very narrowly winged; oil tubes 3 to 6 in the intervals, 4 to 8 on the commissure.—Montane, 4000 to 10,200 ft.: Sierra Nevada north to Modoc Co.; inner North Coast Range (Mendocino Co. to Siskiyou Co.).

scabrous; leaves uni-, bi- or partly 3 or 5 leaflets; leaflets broadly ovate in outline, laciniately pinnatifid, ½ to 2 in. long; fruiting rays ¾ to 1 (or 1½) in. long; bractlets linear-setaceous, few or none; fruit broadly oblong, 1½ to 2 lines long, the ribs very sharp; oil tubes 4 or 5 in the dorsal intervals, 5 or 6 in the lateral ones, 6 to 8 on the commissure.—Rocky or brushy hills, San Francisco to Humboldt Co. June.

Locs.—Colma, San Mateo Co., Pendleton 627; Bay View Hills, San Francisco, E. Cannon; Pt. Reyes, Davy 6766, 6768b; Kenwood, Blasdale; Eureka, Tracy 971; Dinsmore Ranch, Van Duzen River Valley, Tracy 3970; Hupa road near Redwood Creek, Jepson 1959; Gilbert Creek, Del Norte Co., Jepson 9356.

Refs.—*LIGUSTICUM APIODORUM* C. & R. Contrib. U. S. Nat. Herb. 7:132 (1900). *Pimpinella apiodora* Gray,



24. *Ligusticum grayi* C. & R.; a, leaf x $\frac{3}{8}$; b, umbels x $\frac{1}{2}$; c, fr. x 5; d, sect. carp. x 9.

Locs.—Farewell Gap, *Jepson* 1149; Mineral King, *Jepson* 1033; Alta Mdws., Tulare Co., *K. Brandegee*; Mt. Silliman, *K. Brandegee*; Chilnualna Creek, *Congdon*; Peregoy Mdw., Yosemite Park, *Jepson* 5640a; Rodgers Lake to Muir Lake, *Jepson* 3386; Stanislaus Peak, *A. L. Grant* 530; Ostrander Mdws., Yosemite Park, *Bolander* 6341; Piute Mt., Tuolumne Co., *Jepson* 4582; Soda Springs Cañon, Kennedy Lake, *A. L. Grant* 472; Silver Lake, Amador Co., *E. Mulliken*; Ebbetts Pass, Alpine Co., *Brewer* 2082; Silver Creek, Eldorado Co., *Kennedy* 21, 95, 95a, 181; Deer Park, Placer Co., *C. J. Fox*; Mt. Tallac, *Jepson* 8155; Placer Co., *Carpenter*; Summit, Nevada Co., *Jepson*; Webber Lake, *Lemmon*; Mill Creek Mdw., Warner Mts., *L. S. Smith* 985; Mt. Bidwell, *Jepson* 7884; Shackelford Creek, near Quartz Valley, *Butler* 459; South Yollo Bolly, *Jepson*.

Refs.—LIGUSTICUM GRAYI C. & R. Rev. N. Am. Umbell. 88 (1888). *L. apiifolium* Brew. & Wats. Bot. Cal. 1:264 (1876). *L. apiifolium* var. *minus* Gray, Brew. & Wats. Bot. Cal. 1:264 (1876), type loc. Ostrander's Mdws., near Yosemite, *Bolander* 6341, is a somewhat smaller form, especially Ebbetts Pass, Alpine Co., *Brewer* 2082. *L. cusickii* C. & R. Contrib. U. S. Nat. Herb. 7:138 (1900), type loc. higher mts. of e. Ore., *Cusick* 1799. *L. pringlei* C. & R. l. e., type loc. Siskiyou Co., *Pringle* 19.

24. LILAEÓPSIS Greene.

Small glabrous perennials. Stems fistulous, creeping and rooting in the mud, only the leaves and short peduncles erect. Leaves reduced to hollow cylindrical petioles jointed by transverse partitions. Flowers dull white or slightly tinged with pinkish brown, in a few-flowered simple umbel. Bracts of the involucre minute. Fruit subglobose. Dorsal ribs filiform, the lateral corky and thickened next to the commissure. Oil tubes solitary in the intervals (rarely 2), 2, 4 or 6 on the commissure. (Named for its resemblance to *Lilaea*.)

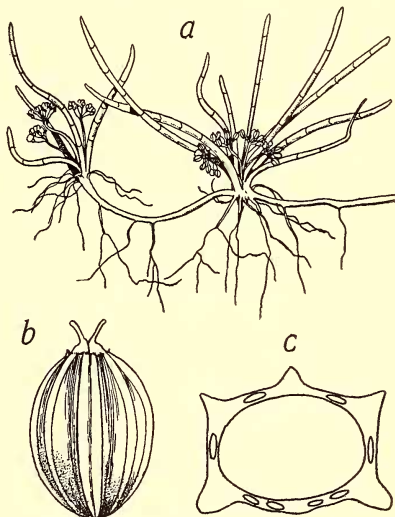
1. *L. lineata* (Michx.) Greene, var. *occidentalis* Jepson n. comb. Fig. 25. Leaves 1 to 8 in. long, 1 to 2 lines wide; peduncles 1 in. long or less; fruiting pedicels $1\frac{1}{2}$ to 3 lines long; petals plane; fruit 1 line long.—Salt marshes or brackish mud flats along the coast from Marin Co. to Humboldt Co.; north to Alaska.

Locs.—Suisun Bay, s. shores (acc. *K. Brandegee*); Abbotts Lagoon, Pt. Reyes, *Jepson* 1165; Bodega Head, *K. Brandegee*; Samoa, Humboldt Co., *Tracy* 3102; Stone Lagoon, Humboldt Co., *Jepson* 9333.

Refs.—LILAEOPSIS LINEATA Greene, Pitt. 2:192 (1891); var. OCCIDENTALIS Jepson. *L. occidentalis* C. & R. Bot. Gaz. 24:48, fig. 2 (1897), type loc. Yakima Bay, Ore., *Hall* 205; Contrib. U. S. Nat. Herb. 7:123, fig. 37 (1900). *L. lineata* Jepson, Fl. W. Mid. Cal. ed. 2, 298 (1911). *Crantzia lineata* Jepson, Fl. W. Mid. Cal. ed. 1, 353 (1901).

25. PODÍSTERA Wats.

Dwarf perennial, the stems short and shortly branched, forming a mat-like plant. Leaves once or twice pinnately parted. Umbels compound but very much condensed. Involucre none. Involucels of 3 to 5-cleft green bractlets.



25. *Lilaeopsis lineata* Greene var. *occidentalis* Jepson n. comb.; a, habit x $\frac{1}{2}$; b, fr. x 12; c, sect. carp. x 18.

Flowers white or pinkish. Calyx teeth prominent. Styles ribbon-like. Fruit flattened laterally, elliptic-ovate. Ribs slender. Oil tubes 2 or 3 in the intervals, 6 on the commissure. (Greek podos, foot, and stereos, solid, referring to the compactly involved pedicels and involuclens.)

Leaves pinnately parted.....1. *P. nevadensis*.
Leaves bipinnately parted.....2. *P. albensis*.

1. *P. nevadensis* (Gray) Wats. Peduncles arising from the short crowded branches, $\frac{3}{4}$ to $1\frac{1}{2}$ in. high; herbage obscurely puberulent; leaves pinnately parted, 4 to 9 lines long, the 5 to 7 segments narrowly oblong, acute, entire, 1 to 3 lines long, the petioles with membranous sheaths; flowers yellow; umbels very much condensed; fruit 1 to $1\frac{1}{4}$ lines long.—Alpine, 11,600 to 13,000 ft., on high peaks of the Sierra Nevada in Tuolumne and Mono Cos.

Locs.—Mt. Dana, Brewer, Lemmon, Congdon, Jepson 3291, 3312, H. M. Evans; Mt. Warren, Congdon. It is found mostly within the limits of an 800-foot zone. The plants form closely woven circular mats often one foot in diameter, with the flowers scarcely rising above the foliage.

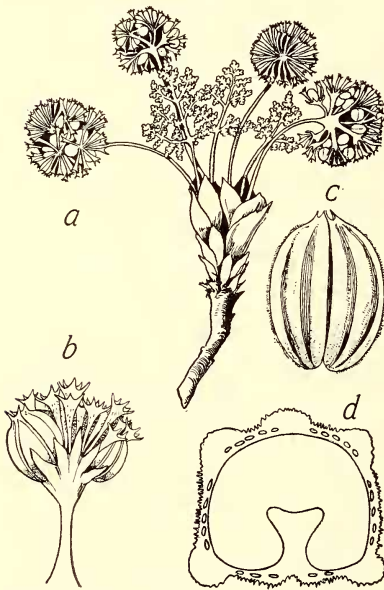
Refs.—*PODISTERA NEVADENSIS* Wats. Proc. Am. Acad. 22:475 (1887).
Cymopterus nevadensis Gray, Proc. Am. Acad. 6:536 (1865), type loc. Mt. Dana, Brewer.

2. *P. albensis* Jepson n. sp. Similar to *P. nevadensis*; plants 1 to $2\frac{1}{4}$ in. high; leaves bipinnatifid, the oblong segments 1 to 2 lines long.—Rocks, White Mts., Inyo Co., 7000 to 8000 ft. (Purpus 5831, type).

26. OREONANA Jepson nov. gen.

Low tufted grayish plants, the peduncles and leaves from the root-crown of a stout tap-root. Herbage woolly or roughish pubescent. Leaves ternately compound and finely dissected, the segments crowded, callous-margined and cuspidate.

Flowers white, in compound umbels, the umbels much condensed or capitate. Rays about 10 to 15. Calyx teeth present, often conspicuous. Involucre none. Involucels unilateral. Fruit broadly elliptic or orbicular, somewhat laterally compressed, sessile. Ribs filiform. Sterile flowers on filament-like pedicels which are longer than the rays. Oil tubes 3 to 5 in the intervals, 3 or 4 or 6 on the commissure. (Greek oreos, mountain, and nannos, dwarf, these plants very small as compared with the *Velaeae* from which they are separated.)



26. *Oreonana californica* Jepson; a, habit x $\frac{1}{2}$; b, umbellet x $2\frac{1}{2}$; c, fr. x 4; d, sect. carp. x 12.

Rays membranously winged and web-footed; sterile pedicels equaling or little exceeding the fruit; calyx teeth of sterile flowers very conspicuous, star-like.....1. *O. californica*.

Rays not winged; sterile pedicels greatly exceeding the fruit; calyx teeth inconspicuous.....2. *O. vestita*.

1. *O. californica* Jepson n. sp. Fig. 26. One to 3 in. high; blades, pedicels and fruits with a short stiff spreading pubescence, the plant otherwise glabrous; peduncles equaling or little exceeding the leaves; umbel globose-capitate; involuclens 5-lobed, the lobes ovate-acuminate; rays membranously winged and web-footed at base, very short (1 to 2 lines long); fruit densely white-pubescent when young, greyish in age, sessile, globose,

the calyx teeth evident; pedicels of sterile flowers equaling or only slightly exceeding the fruit; oil tubes 3 to 5 in the intervals, 4 (or 3) on the commissure; calyx teeth of sterile flowers very conspicuous, star-like.—Upper Kern River basin, 6000 to 12,000 ft.

Locs.—Harrison Pass, *Jepson* 5036; Mt. Whitney, *Purpus* 1479; mts. betw. Soda Creek and Little Kern River, *Purpus* 1769; Whitney Mdws., *Hall & Babcock* 5469; Ramshaw Mdws., *Jepson* 4966 (type); Kern Peak, *Mary Haskell*.

2. *O. vestita* Jepson n. comb. Plants 2 to 4 in. high, clothed with a dense soft-silky pubescence; umbels condensed but still umbellate in form, equaling or mostly raised above the leaves; involucels of lanceolate 3 to 5-lobed bractlets; rays 6 to 10 lines long, not winged; sterile pedicels 4 to 6 lines long, greatly exceeding the fruit; fruit sessile or nearly so, ovate-oblong, soft-pubescent, 2 lines long; oil tubes 3 or 4 in the intervals, 3 on the commissure; calyx teeth of sterile flowers evident but not conspicuous.—San Gabriel and San Bernardino mountains, 6500 to 10,000 ft. Rare.

Locs.—Summit of Mt. San Antonio, *Charlotte Wilder*; summit of North Baldy, *Peirson* 137; Bear Valley, *Parish*.

Refs.—OREONANA VESTITA Jepson. *Deweya vestita* Wats. Proc. Am. Acad. 17:374 (1882), type loc. summit of Mt. San Antonio (Baldy), *S. B. & W. F. Parish*; Wats. l. c. 22:415 (1887). *Velaea vestita* C. & R. Rev. N. Am. Umbell. 122 (1888). *Drudeophytum vestitum* C. & R. Contrib. U. S. Nat. Herb. 7:83 (1900).

27. VELAËA DC.

Subglabrous perennials with thick yellow elongated odoriferous taproots. Leaves mostly basal, pinnately or ternately compound. Ours usually without involucre, the involucels in our species of few small lanceolate bracts. Flowers yellow, in compound umbels. Fruit oblong or orbicular, somewhat laterally compressed, with acute or filiform equal ribs. Oil tubes conspicuous, 3 to 6 in the intervals, 4 to 10 on the commissure. Seed-face strongly involute, inclosing a central cavity. (Sebastin Eugene Vela, student of the Umbelliferae.)

Leaves simply pinnate; ribs of the carpel prominent.—Subgenus DEWEYA..

1. *V. arguta*.

Leaves ternate; ribs of carpel filiform, slender or inconspicuous.—Subgenus DRUDEOPHYTUM.

Ultimate leaf segments 1 to 2 in. long; bractlets conspicuous, often exceeding the umbellet; fruit 3 to 4 lines long.....

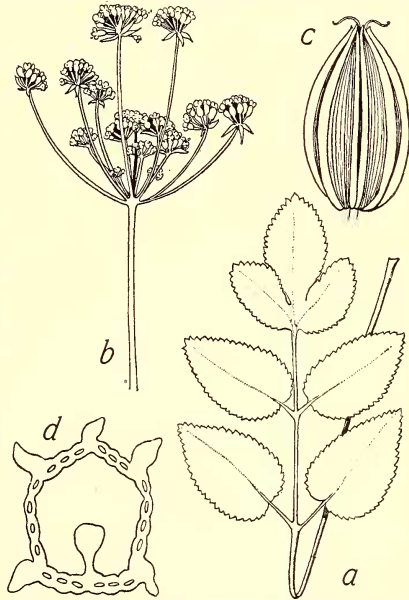
2. *V. hartwegii*.

Ultimate leaf segments usually less than 1 in. long; bractlets inconspicuous, shorter than the umbellets.

Calyx teeth obsolete; fruit nearly orbicular, 1 to 2 lines long, as broad or nearly as broad. 3. *V. kelloggii*.

Calyx teeth evident; fruit oblong, 2 to 3 lines long.....

4. *V. parishii*.



27. *Velaea arguta* C. & R.; a, leaf x $\frac{1}{2}$; b, umbel x $\frac{1}{2}$; c, fr. x 3; d, sect. carp. x 8.

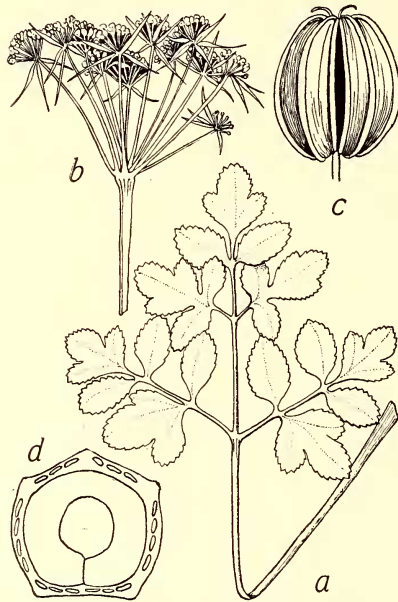
1. *V. arguta* (Nutt.) C. & R. Fig. 27. Plants 1 to 2½ ft. high, the leaves simply pinnate, 2 to 5 in. long, on petioles about 1½ times as long; leaflets 5 to 7, ovate, finely and sharply serrate, 1 to 2 in. long; the lowest often

petiolulate; terminal and lowest leaflets often subcordate and often 3-lobed; rays 12 to 20, $1\frac{1}{2}$ to 3 (or 5) in. long; pedicels 1 to 4 lines long; involucre mostly none; involucre of few linear acuminate bractlets; fruit oblong, 4 lines long; ribs acute, prominent; oil tubes 3 to 5 in the intervals, 4 to 6 on the commissure.—Mountains of coastal Southern California and Lower California.

Locs.—Santa Barbara, *K. Brandegee*; Echo Mt., *Peirson* 134; San Bernardino foothills, *Parish* 4470; Warren's Ranch, e. San Bernardino Mts., *T. Brandegee*; Chalk Hill, San Jacinto Mts., *Hall* 2083; Ramona, *T. Brandegee*.

Refs.—VELAEA ARGUTA C. & R. Rev. N. Am. Umbell. 120 (1888). *Deweya arguta* T. & G. Fl. 1:641 (1840), type loc. San Diego, *Nuttall*; C. & R. Contrib. U. S. Nat. Herb. 7:79, fig. 14 (1900). *Ligusticum argutum* Nutt. T. & G. Fl. 1:641 (1840), type loc. San Diego, *Nuttall*. *Arracacia arguta* Wats. Bibl. Index. N. Am. Plants 419 (1878).

2. *V. hartwegii* (Gray) C. & R. Fig. 28. Plants mostly tufted, 1 to 3 ft.



28. *Velaea hartwegii* C. & R.; a, leaf x $\frac{1}{2}$; b, umbel x $\frac{1}{2}$; c, fr. x 3; d, sect. carp. x 6.

high, the peduncles and leaves from a shortly branched caudex; peduncles and petioles somewhat scabrous; leaves biternate, or partly triternate, the ultimate lateral divisions mostly 3-foliolate, the ultimate middle divisions mostly 5 or 7-foliolate; leaflets ovate or oblong, sparingly incised, serrate, mucronate, $\frac{3}{4}$ to 2 in. long, or the leaflets often more or less confluent; petioles 2 to 6 in. long; rays about 15, 2 to 4 in. long in fruit; bracts none; bractlets 3 to 6, unequal, linear-lanceolate, long-pointed, exteriorly disposed, mostly surpassing the umbellets; fruit nearly orbicular, 3 to 4 lines long; ribs slender but rather prominent; oil tubes 3 (or 4 to 6) in dorsal intervals, 3 or 4 (to 6) in laterals, 6 (in sets of 3) or 9 on the commissure.—Foothills: Sierra Nevada, 2000 to 5000 ft. from Tulare Co. to Butte Co.; South Coast Ranges from Ventura Co. to Contra Costa Co., mostly 1000 to 2000 ft. Apr. Widely distributed but somewhat rare locally.

Locs.—Sierra Nevada: South Fork Keweah River above Clough Cave; *Jepson* 4655; Pine Ridge, Fresno Co., *Hall & Chandler* 310; Collins Mdw., Fresno Co., *Hall & Chandler* 531; Benton Mills, Mariposa Co., *Congdon*; Hazel Green, Coulterville road to Yosemite, *Jepson*; Amador Co., *Hansen* 900; Little Chico Creek, *R. M. Austin*. South Coast Ranges: Ojai Valley, *F. W. Hubby*; Cuyama, *Eastwood*; Estrella, *L. Jared*; Arroyo Grande, *Alice King*; Loma Prieta, *Davy* 640; Morrison Cañon, Niles, *Jepson*; Berkeley, *Jepson*; Mt. Diablo, *Greene*.

Refs.—VELAEA HARTWEGII C. & R. Rev. N. A. Umbell. 121 (1888); C. & R. Contrib. U. S. Nat. Herb. 7:81, fig. 15 (1900); *Jepson*, Fl. W. Mid. Cal. 350 (1901). *Deweya hartwegii* Gray, Proc. Am. Acad. 7:342 (1868), type loc. n. Sierra foothills, *Hartweg* 1748; *Jepson*, Erythraea, 5:55 (1897). *Drudeophytum hartwegii* C. & R. Contrib. U. S. Nat. Herb. 7:81 (1900).

3. *V. kellóggii* (Gray) C. & R. Plants erect, $\frac{3}{4}$ to $2\frac{3}{4}$ ft. high; flowering stems leafless or with a single leaf only; leaves basal, 1 to 2 or 3 times ternate; leaflets ovate or roundish, sharply serrate and more or less incised or lobed,

mostly $\frac{1}{2}$ to 1 in. long; fruiting rays 2 to 4 in. long, or in fruit 3 to 4 in. long; pedicels 2 to 4 lines long; fruit nearly orbicular, 1 to 2 lines long, nearly as broad as long or a little broader, somewhat notched at base; ribs filiform; oil tubes 3 in the dorsal intervals, 5 to 6 in the laterals, 8 to 10 on the commissure.—Cañons in the foothills: Coast Ranges from Humboldt Co. to Contra Costa Co., 500 to 1500 ft.: northern Sierra Nevada foothills from Sacramento Co. to Butte Co., 1000 to 3500 ft. Rather rare.

Locs.—Pilarcitos Cañon, San Mateo Co., *Davy*; Mt. Tamalpais, *Jepson*; Comptche, Mendocino Co., *Harriett Walker* 274; Maple Creek, Mad River, *Tracy* 2607; Willow Creek, Trinity River, *Tracy* 3289; Stirling, Butte Co., *Heller* 10811.

Refs.—VELAEA KELLOGGII C. & R. Rev. N. A. Umbell. 121 (1888); *Jepson* Fl. W. Mid. Cal. 350 (1901). *Deweya kelloggii* Gray, Proc. Am. Acad. 7:343 (1868), type loc. Bolinas Bay, *Kellogg*; Wats. Proc. Am. Acad. 22:415 (1887). *Drudeophytum kelloggii* C. & R. Contrib. U. S. Nat. Herb. 7:81 (1900).

4. **V. parishii** C. & R. Plants erect, short ($\frac{1}{2}$ to $1\frac{1}{2}$ ft. high), with mostly basal leaves; herbage glabrous throughout; leaves $\frac{1}{2}$ to $\frac{3}{8}$ as long as flowering stems, thickish, bipinnate, the segments ovate, irregularly incised or cuspidate-toothed, 4 to 7 lines long; rays 14 to 20, 1 to $2\frac{1}{4}$ in. long; pedicels 2 to 3 lines long; pedicels of sterile flowers often equaling the fruit; involucre none; involucels of a few setaceous bractlets; calyx teeth prominent; fruit oblong, 2 to 3 lines long; oil tubes 3 or 4 in the intervals, 4 or 5 on the commissure.—Mountains of Southern California and northerly to the Sierra Nevada of Kern and Tulare Cos., 4000 to 8000 ft.

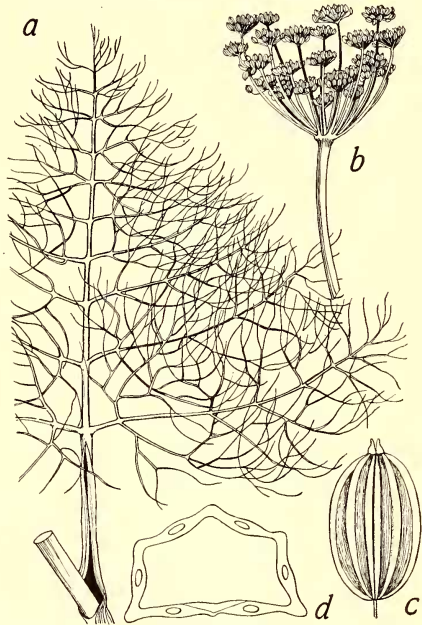
Locs.—Santa Rosa Mt., *Jepson* 1441; Strawberry Valley, Mt. San Jacinto, *Hall* 2508; Cushenberry Cañon, San Bernardino Mts., *Parish* 2379; Mt. Wilson, *Davidson*; Mt. Lowe, *Peirson* 136; Bitter Creek, Mt. Pinos, *Hall* 6633; Greenhorn Range (e. slope), *Hall & Babcock* 5082; Pah Ute Peak, *Purpus* 5339; Lloyd Mdws., Kern River, *Jepson* 4901; Cottonwood Creek near Timosea Peak, Inyo Co., *Jepson* 5085.

Refs.—VELAEA PARISHII C. & R. Rev. N. Am. Umbell. 121 (1888), type loc. San Bernardino Mts., *Parish Bros.* 1827. *Drudeophytum parishii* C. & R. Contrib. U. S. Nat. Herb. 7:82 (1900).

28. FOENÍCULUM Hill.

Stout glabrous perennial with dark green aromatic herbage. Leaves decomposed, dissected into numerous filiform segments. Flowers yellow, in large compound umbels. Involucre and involucels none. Calyx teeth obsolete. Fruit oblong, the ribs prominent. Oil tubes solitary in the intervals, 2 on the commissure. (Diminutive of Latin foenum, hay, from its odor.)

1. **F. vulgare** (L.) Gaertn. SWEET FENNEL. Fig. 29. Stem striate, branching, 3 to 7 ft. high; herbage glaucous; rays $\frac{1}{2}$ to $2\frac{1}{2}$ in. long; fruit $1\frac{1}{2}$ to 2 lines long.—Naturalized from Europe, frequenting waste places on old farms and by country lanes; flowering in summer.



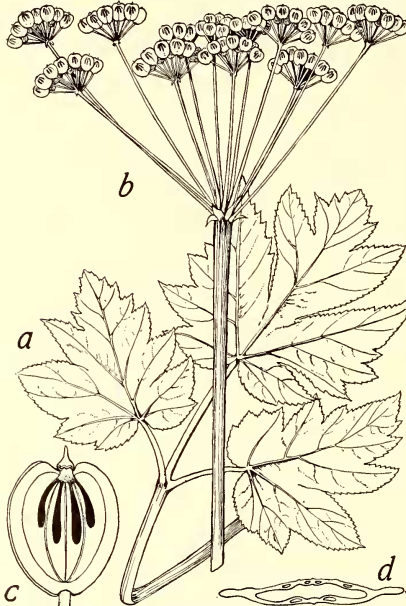
29. *Foeniculum vulgare* Gaertn.; a, leaf $\times \frac{1}{4}$; b, umbel $\times \frac{1}{4}$; c, fr. $\times 5$; d, sect. carp. $\times 10$.

Locs.—Lake Co., *P. E. Goddard* in 1901; Sacramento, *Bioletti*; Vacaville; Cordelia, *Jepson* 9064; St. Helena, *Jepson* in 1895; Berkeley; Berryessa, Santa Clara Co., *Davy* 7058; Monterey; San Luis Obispo, *Jepson*; Los Angeles (*Erythra* 1.59).

Refs.—*FOENICULUM VULGARE* Gaertn. Fruct. & Sem. 1:105, pl. 23, fig. 5 (1788); *Jepson*. Fl. W. Mid. Cal. 354 (1901). *Anethum foeniculum* L. Sp. Pl. 263 (1753), type European.

29. HERACLEUM L.

Tall perennials with stout stems from thick horizontal rootstocks. Leaves very large, ternately compound, with broad sheathing petioles. Flowers white, in a large many-rayed compound umbel. Involucre deciduous. Involucels of numerous bractlets. Petals obovate, the marginal ones of the umbel much larger. Fruit almost round, strongly compressed. Lateral ribs with a thin wing; dorsal and intermediate ribs filiform. Oil tubes 2 on the commissure, 1 in each interval, visible from the outside and reaching from the summit to about the middle of the carpels. (Named for Hercules, who, it is said, first used it in medicine.)



30. *Heracleum lanatum* Michx.; a, leaf x $\frac{1}{2}$; b, umbel x $\frac{1}{4}$; c, carp. x 2; d, sect. carp. x 3.

1. *H. lanatum* Michx. Cow PARSNIP. Fig. 30. Plants 4 to 5 ft. high; leaflets 3, petiolulate, ovate or orbicular, sharply serrate and lobed, 3 to 6 in. broad; umbels 6 to 10 in. broad; fruit $3\frac{1}{2}$ to 5 lines long.—Common in brushy cañons or on north slopes: Coast Ranges near the sea, middle altitudes in the Sierra Nevada, and high mountains of Southern California. North to Alaska and east to the Atlantic. Reputed poisonous to cattle.

Locs.—Coast Ranges: Carlotta, Humboldt Co., *Tracy* 4511; Inverness, *Jepson*; Berkeley, *Jepson*; Oakland Hills, *Jepson* 5716; Halfmoon Bay, *Jepson*; Monterey, *Jepson*. Sierra Nevada: Ft. Bidwell, *Manning*; Tallac, *C. J. Fox*; Kennedy Lake, Tuolumne Co., *A. L. Grant* 240; Yosemite, *Jepson*; Simpson Mdw., Middle Fork Kings River, *Henrietta Eliot*; Southern California: Little Bear Valley, San Bernardino Mts., *Parish* 1668; San Jacinto Mts. (*Univ. Cal. Publ. Bot.* 1:98).

Refs.—*HERACLEUM LANATUM* Michx. Fl. Bor. Am. 1:166 (1803), type from Canada; C. & R. Contrib. U. S. Nat. Herb. 7:248, fig. 64 (1900); *Jepson*, Fl. W. Mid. Cal. 360 (1901).

30. LEPTOTAËNIA Nutt.

Tall stoutish perennials, with thick fusiform roots and ternately or pinnately compound leaves. Flowers yellow or purple, in compound umbels. Involucre of few bracts or none. Involucels of several small bractlets or none. Fruit oblong to suborbicular, strongly compressed. Lateral ribs with broad corky-thickened wings coherent until maturity. Dorsal and intermediate ribs filiform and approximate. Oil tubes 1 to 8 in the intervals, 2 to 10 on the commissure or

obscure and apparently none. (Greek leptos, narrow, and tainia, vittae or oil tubes.)

Stems leafy below; leaves large, the ultimate segments short.

- Leaves glabrous; oil tubes present. 1. *L. californica*.
 Leaf margins and veins puberulent beneath; oil tubes none. 2. *L. dissecta*.
 Peduncles and leaves from the root-crown; leaves smaller, glabrous, the segments linear, elongated or grass-like.
 Bracts obovate; wings thicker than the body of the fruit. 3. *L. anomala*.
 Bracts lanceolate, entire; wings not so thick as the body of the fruit. 4. *L. humilis*.

1. *L. californica* Nutt. Erect, 2 to 4 ft. high, glabrous, glaucous; leaves once or twice ternate, then pinnate; leaflets 1 to 2 in. long or more, cuneate-orbicular or -obovate, 3-lobed or the terminal 3-parted, serrate above; peduncles at summit abruptly widened into a disk-like dilatation; rays subequal, 2 to 3 in. long; bracts none; fruiting pedicels 3 to 9 lines long; bractlets few or none; fruit elliptical, narrowly winged, 4 to 6 lines long; oil tubes 6 to 10 on the commissure (the lateral frequently anastomosing), 3 or 4 in the intervals or sometimes obscure.—Coast Ranges, 1000 to 3000 ft., north to Siskiyou Co. and southern Oregon, south to Santa Barbara Co. and Kern Co.

Locs.—Pah Ute Peak, *Purpus* 5092; Calaveras Valley, Alameda Co., *K. Brandege*; Mt. St. Helena, *Barber* 2602; Calistoga, *Jepson*; Vaca Mts., *Jepson*; Potter Valley, Mendocino Co., *Purpus*; Ft. Seward Ridge, s. Humboldt Co., *Jepson* 1892a; ridge betw. Van Duzen and Mad Rivers, *Tracy* 2905; Yreka, Siskiyou Co., *Butler* 799. Keno, Klamath River, s. Ore., *Cusick* 2837.

Refs.—LEPTOTAENIA CALIFORNICA Nutt.; T. & G. Fl. N. Am. 1:630 (1840), type loc. Santa Barbara, *Nuttall*; *Jepson*, Fl. W. Mid. Cal. 356 (1901). Var. *platycarpa* *Jepson*, *Erythraea* 1:8 (1893), type loc. Gates Cañon, Vaca Mts., *Jepson*. Var. *dilatata* *Jepson*, *Erythraea* 1:63 (1893), type loc. Elk Ridge, Mendocino Co., *Bolander* 6526.

2. *L. dissecta* Nutt. Plants 1½ to 2¾ ft. high, leafy at base; leaves broad, 2 or 3 times ternate and then once or twice pinnate, the segments incised-pinnatifid; ultimate segments linear-oblong, 1 to 2 lines long; peduncles 1 to 2 ft. long; fruiting rays 2 to 4½ in. long; involucre of few bracts or none; involucres of several lanceolate bractlets; flowers yellow or purplish; fruit oblong, 5 to 9 lines long, sessile or on pedicels 1 line (rarely to 3 lines) long; dorsal and intermediate ribs filiform or sometimes obscure; oil tubes none or very obscure.—Open wooded slopes: Coast Ranges from Mendocino Co. to Siskiyou Co., thence south in the Sierra Nevada to Mariposa Co. Northward to British Columbia. Apr.-June.

Locs.—Buck Mt., Humboldt Co., *Tracy* 4237; Hupa, *Chandler* 1340; Dyers Ranch to Hawkins Bar, Trinity Co., *Jepson* 1996; Yreka, *Butler* 1303 (pedicels 1½ to 2 lines long); Fall River Sprs., ne. Shasta Co., *Hall & Babcock* 4206 (pedicels as in *Butler* 1303); Agua Fria, Mariposa Co., *Congdon* (foliage resembling var. *multifida*). The three last cited spms. represent intergrades to var. *multifida*.

Var. *MULTIFIDA* *Jepson* n. comb. Leaves dissected into linear segments 2 to 4 lines long; fruiting pedicels 3 to 7 lines long; fruit 5 to 7½ lines long; seed face concave.—Montane, 3500 to 8000 ft., Sierra Nevada from Nevada Co. to Kern Co., south to Southern California. Eastward to New Mexico and Montana.

Locs.—Truckee, *Sonne*; Kennedy's Lake, Tuolumne Co., *A. L. Grant* 245, 211; Tehachapi Mts., *Jepson* 7422; Andrews Camp, Inyo Co., *K. Brandege*; Indian Cañon, San Rafael Mts., *Hall* 7807; Lytle Creek, San Antonio Mts., *Hall* 1430.

Refs.—LEPTOTAENIA DISSECTA Nutt.; T. & G. Fl. N. Am. 1:630 (1840), type loc. mouth of the Willamette River, *Nuttall*; *Jepson*, Fl. W. Mid. Cal. 357 (1901). *Ferula dissecta* Gray, Proc. Am. Acad. 7:348 (1868). *Ferula dissoluta* *Wats.* Bot. Cal. 1:271 (1876). Var. *MULTIFIDA* *Jepson*. *L. multifida* Nutt.; T. & G. Fl. 1:630 (1840), plains of the Columbia River east of Walla Walla and in the Blue Mts., *Nuttall*; C. & R., Contrib. U. S. Nat. Herb. 7:198, fig. 59 (1900).

3. *L. anomala* C. & R. Plants 10 to 12 in. high, glabrous throughout; leaves

all basal, ternate, then pinnate, the divisions few, distant, very narrowly linear, $\frac{1}{2}$ to 3 in. long; peduncles arising from the root-crown, slender, 6 to 8 in. high; rays 3 to 6, unequal, $1\frac{1}{4}$ to 3 in. long in fruit; pedicels about 1 line long, the umbellets in fruit forming a compact cluster; involucre none; involucels conspicuous, the bractlets prominent, obovate, scarious-margined, veiny, toothed near the apex, more or less united; fruit elliptic to oblong, 3 to 4 lines long, the lateral ribs corky thickened (much thicker than the body), the others filiform; tubes none or inconspicuous.—Sierra Nevada foothills in Amador Co. (Carbondale).

Ref.—LEPTOTAENIA ANOMALA C. & R. Rev. N. Am. Umbell. 53 (1888), type loc. Carbondale, Amador Co., *Curran*.

4. *L. humilis* C. & R. Like *L. anomala*; bractlets linear to lanceolate, entire; wings of the fruit corky-thickened but not as thick as the body.—Butte Co., plains near Little Chico Creek. This simulates *Lomatium marginatum* C. & R.

Var. DENTICULATA Jepson n. var. Wings of the fruit with denticulate margins; intervals commonly with about 3 longitudinal striae.—Blue Ravine, Eldorado Co., *K. Brandegee* (type).

Refs.—LEPTOTAENIA HUMILIS C. & R. Contrib. U. S. Nat. Herb. 7:200 (1900), type loc. plains near Chico, *Bruce* 2661. Var. DENTICULATA Jepson.

31. LOMATIUM Raf. HOG-FENNEL.

Low perennials, mostly of dry ground, with thick roots. Stems usually several from the root crown, naked or few leaved. Leaves decompose, often dissected, wholly basal or sometimes partly sub-basal. Flowers white or yellow, rarely purple, in compound umbels. Involucre none (a few species sometimes with 1 to 3 bracts). Involucels usually present. Fruit roundish to broadly or narrowly oblong, much compressed. Lateral ribs winged, the wings of the companion carpels coherent until maturity. Stylopodium wanting or not obvious in the fruit. Oil tubes 1 to 4 in the intervals, 2 to 6 on the commissure. (From Greek *loma*, a border, referring to the winged fruit.)

I. Stems from a taproot.

A. PEDUNCLES NOT ENLARGED AT SUMMIT.

a. Fruit notched more or less deeply at each end, so that the wings on each side the body are more or less distinct; leaves with the leaflets more or less broad in outline.—Subgenus EURYPTEA.

Leaves ternate, leaflets entire or merely toothed; coastal S. Cal. 1. *L. lucidum*.
Leaves bipinnate, the leaflets ovate in outline, but usually much incised; South Coast Ranges 2. *L. parvifolium*.

b. Fruit not notched or scarcely so, the wings more or less joined above and below the body of the seed.

Leaves decompose, dissected into numerous very small segments.

Leaves ternate or quinate, broad or roundish in outline.—Subgenus EULOMATIUM.
Bractlets present.

Bractlets broad, roundish, or obovate; leaves ternate, then pinnately dissected; flowers yellow; widely distributed species.

Oil tubes none in the intervals or indistinct; wings of fruit narrower than body, thickish. 3. *L. caruifolium*.

Oil tubes solitary in the intervals; wings of fruit thin.

Wings broader than body; body situated mostly above middle of fruit 4. *L. vaseyi*.

Wings equaling the body in breadth or narrower than body; body situated about middle of fruit. 5. *L. utriculatum*.

Bractlets narrow, most often lanceolate.

Bractlets not scarious-margined, often more or less united and unilateral.

Fruit glabrous; corolla glabrous; widely distributed species. 6. *L. macrocarpum*.

Fruit pubescent; corolla with kinky white hairs.
Pedicels mostly $\frac{1}{2}$ in. or more long; wings of the fruit broad, membranous, thinly pubescent; Coast Ranges.

7. *L. dasy carpum*.
Pedicels mostly less than $\frac{1}{2}$ in. long; wings of the fruit narrower, somewhat thickened, tomentose.

(Continued on page 149)